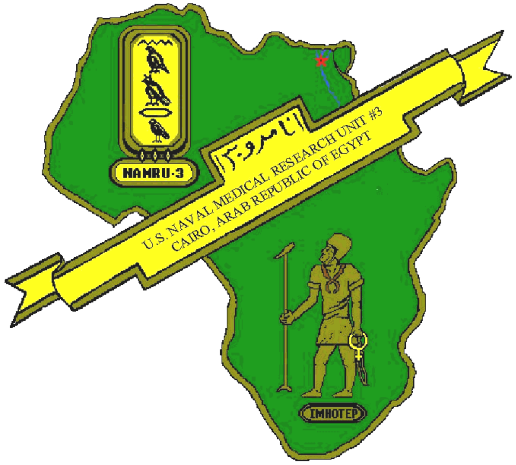
U. S. Naval Medical Research Unit No. 3
Cairo, Egypt



CAPT John R. Gilstad, MC, USN
Commanding Officer

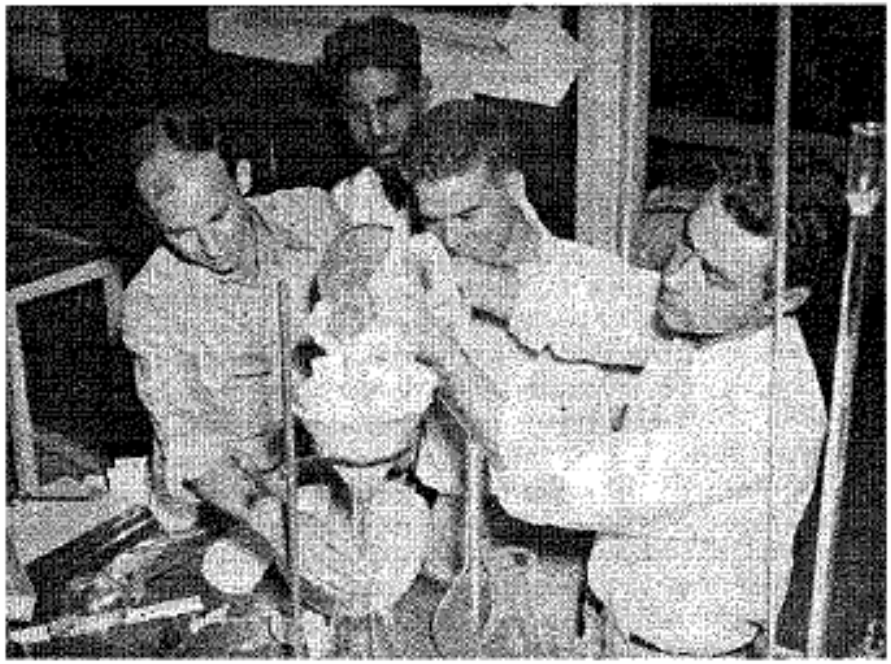
The beginning…

- United States of America Typhus Commission was established by President Roosevelt on 24 Dec 1942, with field offices in Cairo, as outbreaks of typhus affected Allied operations in Italy and threatened planned operations in North Africa

- A young Naval Officer on the Commission, Dr. Robert Phillips, convinced the Bureau of Medicine and Surgery to establish a permanent overseas research lab as the Commission was disestablished in 1946.

First Steps…

- On 21 Sept 1947 the first case of cholera in Egypt in 45 years was diagnosed. CDR Philips and NAMRU-3 assisted, and conducted landmark studies demonstrating the efficacy of fluid replacement.



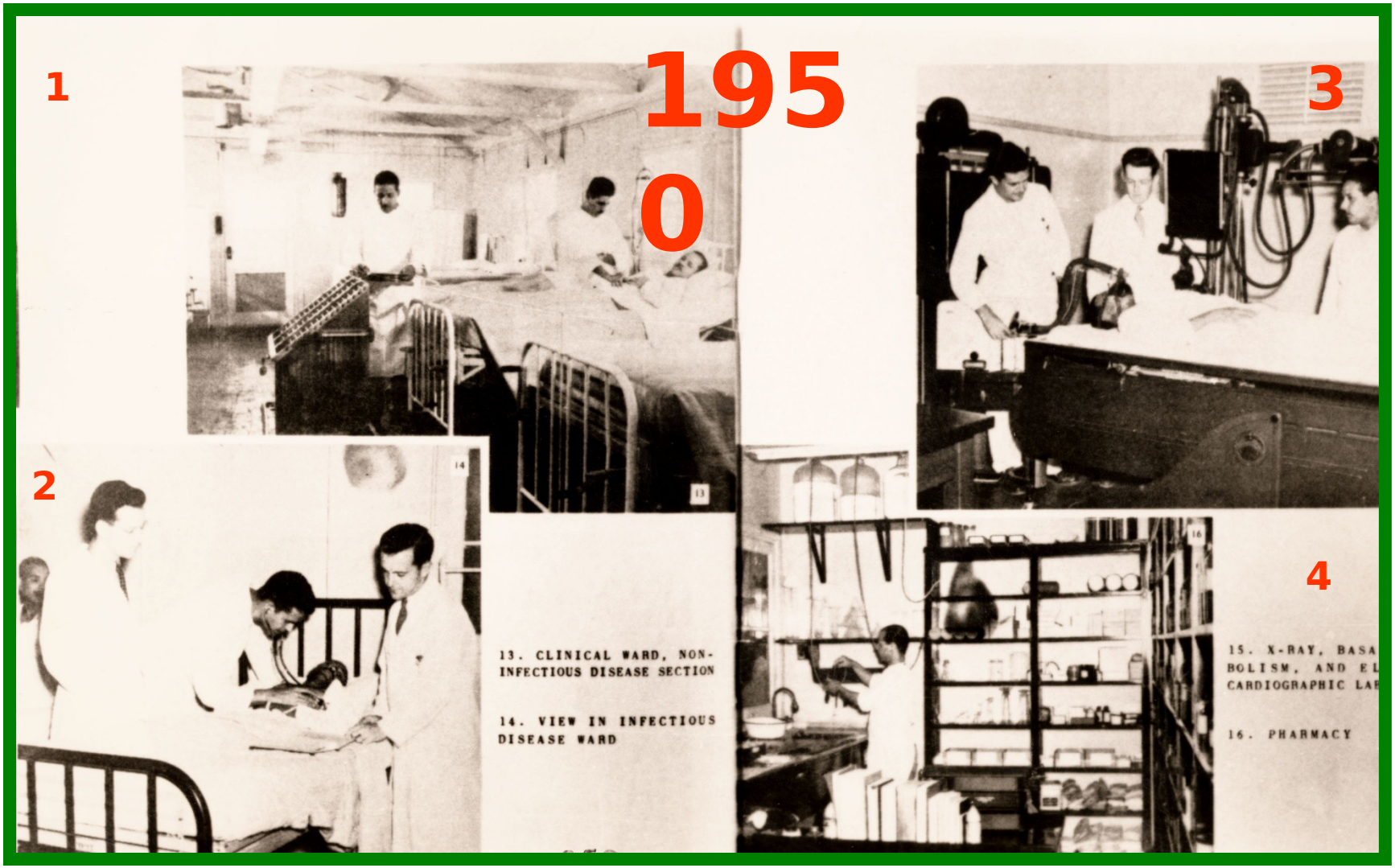
Left to right, Chief Pharmacist's Mate Charles Knight, Chief Nurse Emam Ismael, Pharmacist's Mate Stanley Snodgrass and Chief Pharmacist's Mate Donald Nunnery mix sodium bicarbonate for use by cholera patients.

Off and running…

"NAMRU-3 and America emerged from the cholera epidemic with all flags flying." (Snodgrass 2003)

-Egyptian Ministry of Health presented NAMRU-3 with gold medals for the fight against cholera.

Dedication Ceremony,1948



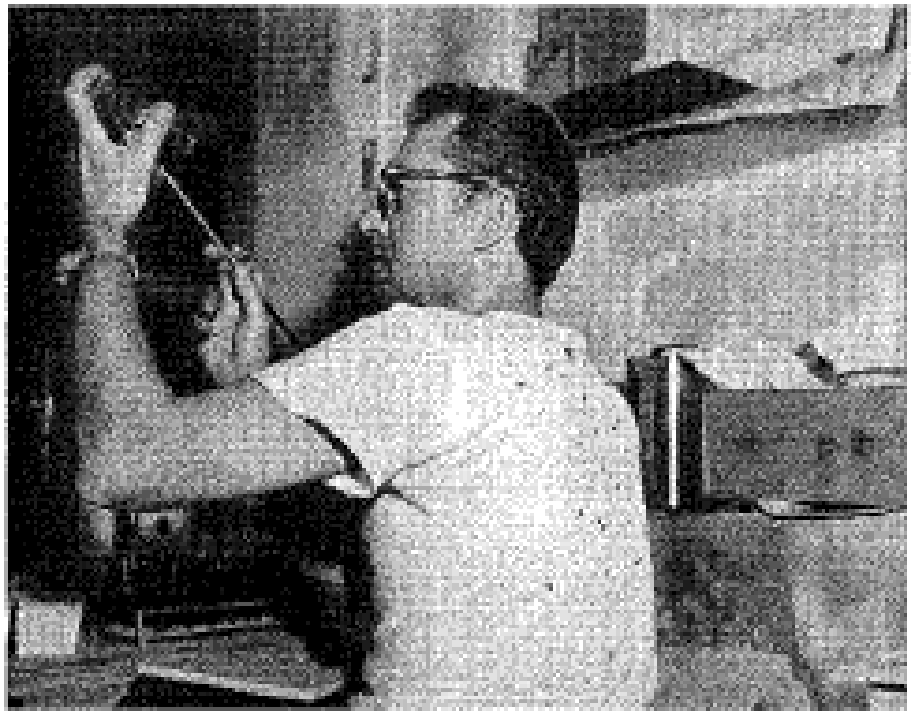
1-Clinical Ward, Non-infectious Disease Section.2 View in Infectious Disease Ward. 3- X-Ray, Basal Metabolism and Electrocardiographic Laboratory 4-Pharmacy

Historical Notes

- 1967-1973, NAMRU-3 continued operations despite break is US – Egypt diplomatic relations after 1967 Egypt-Israeli war.
- 1970: Branch lab of NAMRU-3 established in Ethiopia. Became NAMRU-5 in 1975 and closed in 1977.
- 1983: Biosafety level 3 (4 capable) science building (Bldg. 67) completed
- 1997: Establishment of GEIS program and the Disease Surveillance Program
- 2001: Established detachment in Ghana to develop a malaria vaccine field site.
- 2006: Established partnership with CDC's Global Disease Detection Unit, hosted at NAMRU-3 compound

Scientific Milestones

- fluid replacement in cholera – 1940s
- ecology of West Nile Fever – 1960s
- Meningococcal vaccine – 1970s
- antibiotic prophylaxis for traveler's diarrhea – 1990s
- MERS CoV epidemiology – 2000s



Hospital Corpsman 1st Class Joseph R. Baranski smears a bacteriological plate in Hodeida. Flies, a serious health problem in the Yemen lowlands, explore his shirt.

NAMRU-3 Ethos

"It is to these aims and ideals – the increase of medical knowledge and the fostering of good will – that I dedicate US Naval Medical Research Unit No. 3"

CDR Robert A Philips, dedicatory address 27 Oct 1948

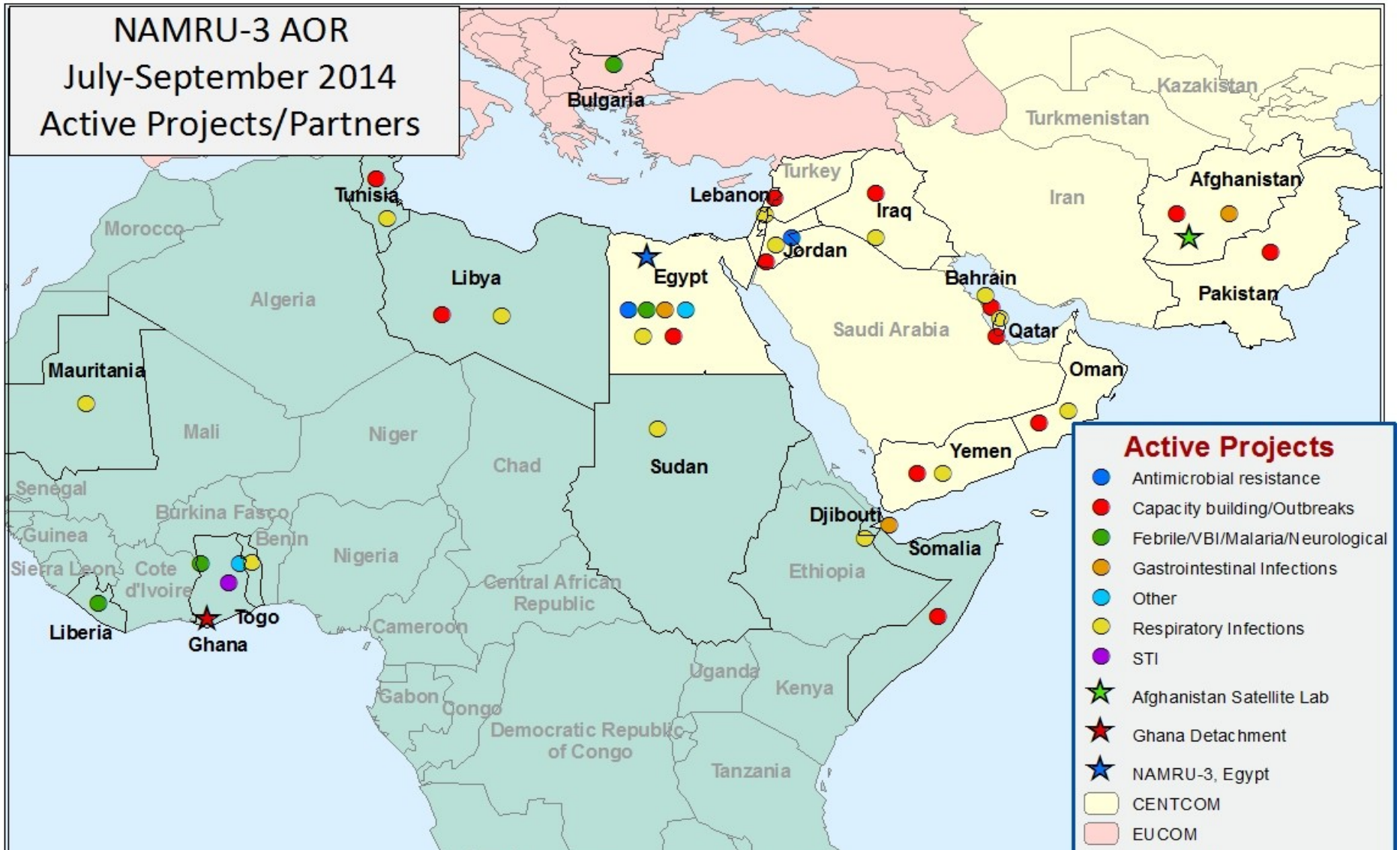
(as quoted in Snodgrass 2003)

NAMRU-3 Mission

Study, monitor, and detect emerging and re-emerging disease threats of military and public health importance; develop mitigation strategies against these threats in partnership with host nations and international and U.S. agencies in CENTCOM, EUCOM, and AFRICOM areas of responsibility.

(July 2010)

Regional Footprint



Bacterial and Parasitic Disease Research Program (BPDRP)

- Camp Lemonnier, Djibouti:
  - Study: diarrhea and influenza-like illness
  - Ongoing study: TREAT diarrhea RCT (2013)
- WHO regional reference laboratory:
  - Rotavirus
  - Malaria
- Diarrheal Surveillance:
  - Global Travelers' Diarrheal Study
  - Novel virus study
  - ACESO Sepsis study
  - AFI and AIND surveillance
  - TB MDR study
  - Campylobacter capsular types study
  - Norovirus typing and length of shedding study
  - Malaria sero-survey in Liberia
  - Malaria KAP studies in Liberia and camp Lemonnier

Global Disease Detection and Response Program (GDDRP)

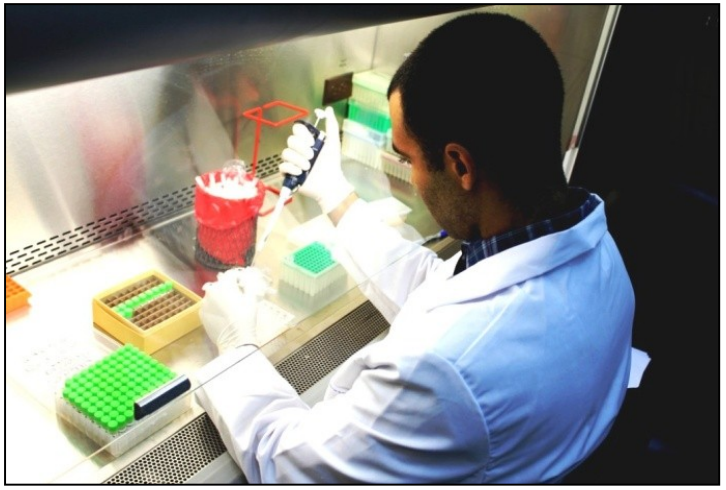
- International Emerging Infections Program:
  - Population-based surveillance (Damanhour, Egypt)
- Eastern Mediterranean Acute Respiratory Infection Surveillance (EMARIS) Network:
  - 29 sites -Egypt, Jordan, Oman, Qatar, Yemen, Iraq and Pakistan
- Integrated Hospital Based Infectious Disease Surveillance in Ghana & Djibouti (AFI/ARI/ADI)
- Integrated Human Animal Vector Surveillance (IHAVS) in Egypt, Djibouti, Ghana, Iraq

Virology and Zoonotic Disease Research Program (VZDRP)

- Established and continues to support National Influenza Centers in 12 countries in Middle East, Central Asia, and West Africa:
  - Molecular diagnostic techniques for influenza
  - Virus isolation for influenza
  - Quality control/quality assurance testing on regional samples
- Influenza-like illness surveillance network:
  - 8 sites in Egypt
- WHO Collaborating Center for Emerging Infectious Diseases
- DoD-designated lab for FDA-approved clinical testing for Ebola

VZDRP Capabilities

- Biosafety Level 3 (BSL-3) laboratories with a Biological Select Agents and Toxins program
- Arbovirus surveillance (Dengue, Rift Valley Fever, Congo Crimean Hemorrhagic Fever, Chikungunya, tick-born encephalitis, hantaviruses)
- Outbreak response: 24/7 capability for laboratory investigation of viral pathogens



Vector Biology Research Program (VBRP)

VBRP goals are to identify arthropod vectors, detect vector-borne disease threats, and evaluate vector control measures:

- scientific research on the behavior, ecology, and epidemiology of arthropod disease vectors
- outreach for laboratory and human capacity building in the interest of public health

VBRP (Contd.)

Vector Surveillance

Mosquito, tick, and sand fly surveillance:

- Liberia
- Ghana
- Morocco
- Egypt
- Djibouti
- Yemen
- Afghanistan

Capacity Building

Laboratory capacity strengthening of vector- borne disease threats:

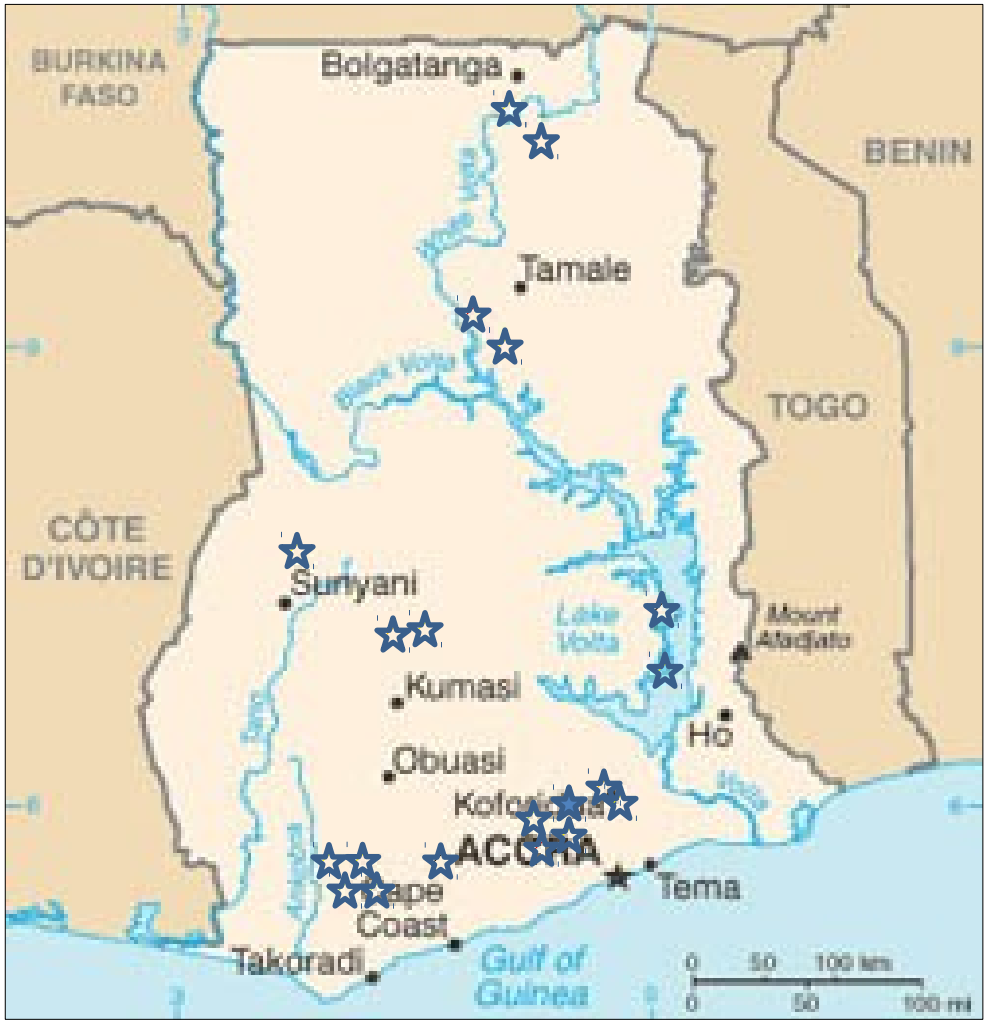
- Liberia
- Nigeria
- Libya
- Egypt
- Djibouti
- Somalia
- Yemen
- Pakistan

NAMRU-3 Ghana Detachment (N-3GD)

NAMRU-3 Hub in West Africa:

- Collaboration with the Ghana Health Services and the Noguchi Memorial Institute of Medical Research (NMIMR) on infectious disease surveillance
- Laboratory for bacterial and viral diagnostics maint

Map of Ghana Detachment Research Sites



Project keys

- Enhanced Surveillance for non-malarial Acute febrile illness in Ghana
- Integrated Hospital –Based infectious Disease
- Integrated Human, Animal, and Vector Surveillance
- Sexually Transmitted Disease Surveillance
- Military to Military Influenza Surveillance Capacity Building in Ghana
- A SYBR Green 1-based in vitro test of Susceptibility of Ghanaian Plasmodium Falciparum clinical isolates to a panel of Antimalarial drugs
- Relationship between Antibody recognition by *Plasmodium falciparum* pre-erythrocytic vaccine

Thank you